

## **Supplementary Materials**

**An exploratory in silico analysis of bacteriocin gene clusters in the urobiome**

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**Supplementary Table 1. Preliminary antimicrobial prediction by BAGEL4 and antiSMASH7 for the bacterial isolates from the urobiome**

ISOLATE	BAGEL4						ANTISMASH7	
						Antibiotic	Antimicrobial peptide	Other
<i>ACINETOBACTER SEPTICUS</i> STR. UMB1319	-	-	-	-	-	-	-	NI- siderophore, Arylpolyene
<i>ACTINOBACULUM SCHAALII</i> STR. UMB0086	-	-	-	-	-	-	RiPP-like	Type III polyketide synthase (T3PKS)
<i>ACTINOBACULUM SCHAALII</i> STR. UMB0063	-	-	-	-	-	-	-	T3PKS
<i>ACTINOBACULUM URINALE</i> STR. UMB0759	-	-	-	-	-	-	-	T3PKS
<i>ACTINOMYCES EUROPAEUS</i> STR. UMB0652	-	-	-	-	-	-	-	-
<i>ACTINOMYCES GRAEVENITZII</i> STR. UMB0286	Sactipeptide	-	-	-	-	-	-	RRE-element containing cluster
<i>ACTINOMYCES HOMINIS</i> STR. UMB0859	LAPs	-	-	-	-	-	LAP, RiPP-like	-
<i>ACTINOMYCES NAESLUNDII</i> STR. UMB0181	Lasso peptide	Linocin M18	Sactipeptide	-	-	Thiopeptide	RiPP-like	RRE-element containing cluster

<i>ACTINOMYCES NEUII</i> STR. UMB0402	-	-	-	-	-	-	-	-
<i>ACTINOMYCES NEUII</i> STR. UMB0125	-	-	-	-	-	-	-	-
<i>ACTINOMYCES NEUII</i> STR. UMB0138	Sactipeptide	Microbisporicin	-	-	-	-	Lanthipeptide- class-I	-
<i>ACTINOMYCES NEUII</i> STR. UMB0918	Sactipeptide	-	-	-	-	-	-	-
<i>ACTINOMYCES</i> <i>ODONTOLYTICUS</i> STR. UMB0018	-	-	-	-	-	-	-	-
<i>ACTINOMYCES SP.</i> STR. UMB0183	Lactococcin	LAPs	Linocin	Sactipeptide	-	Thiopepti de	RiPP-like (3), LAP	-
<i>ACTINOMYCES SP.</i> STR. UMB0731	Linocin	Sactipeptide	-	-	-	-	RiPP-like, Lanthipeptide- class-III, LAP	-
<i>ACTINOMYCES</i> <i>TURICENSIS</i> STR. UMB0250	Thiopeptide	-	-	-	-	Thiopepti de	-	-
<i>ACTINOMYCES</i> <i>UROGENITALIS</i> STR. UMB0319	Sactipeptide	-	-	-	-	-	-	-
<i>AEROCOCCUS</i> <i>CHRISTENSENII</i> STR. UMB0844	Sactipeptide	-	-	-	-	-	-	-
<i>AEROCOCCUS</i> <i>SANGUINICOLA</i> STR.	Sactipeptide	Lichenicidin VK21A1	-	-	-	-	Lanthipeptide- class-II	-

UMB0139									
<i>AEROCOCCUS URINAE</i>	-	-	-	-	-	-	-	-	T3PKS
STR. UMB0088									
<i>AEROCOCCUS URINAE</i>	-	-	-	-	-	-	-	-	T3PKS
STR. UMB0080									
<i>AEROCOCCUS URINAE</i>	-	-	-	-	-	-	-	-	T3PKS
STR. UMB0126									
<i>AEROCOCCUS URINAE</i>	-	-	-	-	-	-	-	-	T3PKS
STR. UMB0232									
<i>AEROCOCCUS URINAE</i>	-	-	-	-	-	-	-	-	T3PKS
STR. UMB0072									
<i>AEROCOCCUS URINAE</i>	-	-	-	-	-	-	-	-	T3PKS
STR. UMB0072									
<i>AEROCOCCUS VIRIDANS</i>	-	-	-	-	-	-	-	-	-
STR. UMB0240									
<i>ALLOSCARDOVIA</i>	-	-	-	-	-	-	-	RiPP-like	T3PKS
<i>OMNICOLENS</i> STR.									
UMB0064									
<i>ALLOSCARDOVIA</i>	-	-	-	-	-	-	-	RiPP-like	T3PKS
<i>OMNICOLENS</i> STR.									
UMB0006									
<i>ANAEROCOCCUS</i>	Sactipeptide	-	-	-	-	-	-	Ranthipeptide	-
<i>HYDROGENALIS</i> STR.									
UMB0204									
<i>ANAEROCOCCUS</i>	Sactipeptide	Propioncin_SM1	-	-	-	-	Equibacti	-	RRE-element
<i>OCTAVIUS</i> STR.	(2)						n		containing
									cluster
UMB0119									

<i>PSEUDOGlutamicibacter albus</i> STR. UMB0722	-	-	-	-	-	-	-	Beta lactone
<i>ARTHROBACTER CUMMINSII</i> STR. UMB0715	-	-	-	-	-	-	-	Beta lactone
<i>BACILLUS ARYABHATTAI</i> STR. UMB0500	Sactipeptide	UViB	-	-	-	-	-	T3PKS, phosphonate, NI-siderophore, CDPS, Terpene (3)
<i>BACILLUS CIBI</i> STR. UMB0893	Sactipeptide (2)	COMX3	Sonorensin	Lasso - peptide	-	-	Lasso - peptide, LAP	Terpene, NI - siderophore, T3PKS
<i>BACILLUS DRENTENSIS</i> STR. UMB0728	-	-	-	-	-	-	-	Terpene (4), T3PKS
<i>BACILLUS SP.</i> STR. UMB0899	LAPs	COMX3	Sonorensin	Sactipeptide	-	-	LAP (2)	Terpene (2), T3PKS, NI-siderophore
<i>BIFIDOBACTERIUM BREVE</i> STR. UMB0915	-	-	-	-	-	-	-	-
<i>BIFIDOBACTERIUM BREVE</i> STR. UMB0089	-	-	-	-	-	-	-	-
<i>BIFIDOBACTERIUM LONGUM</i> STR. UMB0788	-	-	-	-	-	-	-	-
<i>BRACHYBACTERIUM FAECIUM</i> STR.	Microbisporicin	Sactipeptide	Lanthipeptide- Class-I	-	-	-	Lanthipeptide- Class-I, RiPP-	-

UMB0905								like	
<i>BREVIBACTERIUM LUTEOLUM</i> STR.	Sactipeptide	-	-	-	-	-	-		NAPAA, Terpene, NAGGN, Tropodithietic-acid
UMB0680									
<i>BREVIBACTERIUM SP.</i> STR. UMB0680	Sactipeptide	-	-	-	-	-	-		NAPAA, Terpene, NAGGN, Tropodithietic-acid
<i>BREVIBACTERIUM RAVENSPURGENSE</i> STR.	-	-	-	-	-	-	-		Terpene, Ectoine
UMB0426									
<i>BREVIBACTERIUM PAUCIVORANS</i> STR.	-	-	-	-	-	-	-	NRPS	Terpene, NAPPA
UMB1301									
<i>CAMPYLOBACTER UREOLYTICUS</i> STR.	Sactipeptide	-	-	-	-	-	-		Arylpolyene
UMB0112									
<i>CITROBACTER MURLINIAE</i> STR.	Colicin	Colicin-10	Bottromycin	-	-	Thiopeptide	NRP-metallophore	-	
UMB1094									
<i>CORYNEBACTERIUM SP.</i> STR. UMB0338	-	-	-	-	-	-	NRP-metallophore	Terpene, T3PKS, NAPAA	
<i>CORYNEBACTERIUM SP.</i> STR. UMB0042	-	-	-	-	-	-	NRP-metallophore	Terpene, T3PKS, NAPAA,	

									aminopolycarbo xylic-acid
<i>CORYNEBACTERIUM AURIMUCOSUM</i> STR. UMB1300	-	-	-	-	-	-	RiPP-like, NRP, NRP- metallophore	Terpene, T1PKS, NAPAA (2), aminopolycarbo xylic-acid	
<i>CORYNEBACTERIUM SP.</i> STR. UMB0043	-	-	-	-	-	-	-	Terpene, NAPAA, T1PKS	
<i>CORYNEBACTERIUM COYLEAE</i> STR. UMB0147	-	-	-	-	-	-	-	Terpene, NAPAA, T1PKS	
<i>CORYNEBACTERIUM COYLEAE</i> STR. UMB0989	-	-	-	-	-	-	-	NI- siderophore, Terpene, NAPAA, T1PKS	
<i>CORYNEBACTERIUM KROPPESTEDTHI</i> STR. UMB0869	-	-	-	-	-	-	NRP- metallophore, NRPS (2)	Terpene, T3PKS, aminopolycarbo xylic-acid	
<i>CORYNEBACTERIUM SP.</i> STR. UMB0763	-	-	-	-	-	-	-	T1PKS, Terpene	
<i>CORYNEBACTERIUM SP.</i> STR. UMB0243	-	-	-	-	-	-	-	T1PKS, Terpene, NAPAA	
<i>CORYNEBACTERIUM TUSCANIENSE</i> STR. UMB0792	-	-	-	-	-	-	-	T1PKS, Terpene, Ectoine	
<i>CORYNEBACTERIUM XEROSIS</i> STR. UMB0908	Sactipeptide	-	-	-	-	-	-	Terpene (2), T1KPS, NAPAA	
<i>DERMABACTER HOMINIS</i> STR. UMB0490	-	-	-	-	-	-	-	T3PKS	

<i>DOLOSICOCCUS PAUCIVORANS</i> STR. UMB0852	-	-	-	-	-	-	-	-	T3PKS
<i>DOLOSICOCCUS PAUCIVORANS</i> STR. UMB0860	-	-	-	-	-	-	-	-	T3PKS
<i>DOLOSICOCCUS PAUCIVORANS</i> STR. UMB0860	-	-	-	-	-	-	-	-	T3PKS
<i>ENTEROBACTER AEROGENES</i> STR. UMB0295	-	-	-	-	-	Lankacidin C	RiPP-like, NRPS		Arylpolyene
<i>KLEBSIELLA AEROGENES</i> STR. UMB0295	-	-	-	-	-	Lankacidin C	RiPP-like, NRPS		Arylpolyene
<i>ENTEROCOCCUS FAECALIS</i> STR. UMB0891	Cytolysin_Clyls	Enterocin_96	-	-	-	-	Cyclic lactone autoinducer, lanthipeptide-Class-II		RRE-element containing cluster
<i>ENTEROCOCCUS FAECALIS</i> STR. UMB0048	Cytolysin_ClyLs, Cytolysin_ClyL1	-	-	-	-	-	Lanthipeptide-Class-II		-
<i>ESCHERICHIA COLI</i> STR. UMB0789	Colicin	Microcin	Microcin_M, Colicin E1	Bottromycin	ComX4, Carocin_D	Thiopeptide	NRPS (6), NRP-metallophore (2)		Enterobactin, arylpolyene, T1PKS (2)

<i>ESCHERICHIA COLI</i> STR. UMB0900	Colicin_E9	Carocin_D	Bottromycin	-	-	Thiopeptide	NRP-metallophore (2), NRPS (2)	T1PKS, NISiderophore
<i>ESCHERICHIA COLI</i> STR. UMB0901	ComX4	Microcin	Bottromycin	Microcin_M	Colicin	Thiopeptide	NRP-metallophore (2), NRPS (3)	T3PKS
<i>ESCHERICHIA COLI</i> STR. UMB0727	Colicin (2)	Microcin	Bottromycin	Microcin_M	Colicin-10, Colicin E7	Thiopeptide	RiPP-like, NRPS (6), NRP-metallophore (2)	Enterobactin, arylpolyene, T1PKS (2)
<i>FACKLAMIA HOMINIS</i> STR. UMB0111	Lanthipeptide e-Class-IV	-	-	-	-	-	Lasso peptide	T3PKS
<i>FACKLAMIA SP.</i> STR. UMB0898	-	-	-	-	-	-	-	-
<i>FINEGOLDIA MAGNA</i> STR. UMB0115	Putative bacteriocin	Pneumolancidin	-	-	-	-	Ranthipeptide, Lanthipeptide-Class-II, NRPS, RiPP-like	RRE-containing
<i>FUSOBACTERIUM NUCLEATUM</i> STR. UMB0249	Sactipeptide	-	-	-	-	-	NRPS-like	-
<i>GARDNERELLA VAGINALIS</i> STR. UMB0061	Propioncin_SM1	-	-	-	-	-	-	T3PKS
<i>GARDNERELLA</i>	Variacin	-	-	-	-	-	Lanthipeptide-	-

<i>VAGINALIS</i> STR.								Class-II, RiPP-like	
UMB0170									
<i>GARDNERELLA</i>	-	-	-	-	-	-	-	-	-
<i>VAGINALIS</i> STR.									
UMB0912									
<i>GARDNERELLA</i>	-	-	-	-	-	-	-	-	-
<i>VAGINALIS</i> STR.									
UMB0913									
<i>GARDNERELLA</i>	-	-	-	-	-	-	-	-	-
<i>VAGINALIS</i> STR.									
UMB0682									
<i>GARDNERELLA</i>	-	-	-	-	-	-	-	-	-
<i>VAGINALIS</i> STR.									
UMB0264									
<i>GARDNERELLA</i>	-	-	-	-	-	-	-	-	-
<i>VAGINALIS</i> STR.									
UMB0233									
<i>GARDNERELLA</i>	Propioncin_	-	-	-	-	-	-	-	T3PKS
<i>VAGINALIS</i> STR.	SM1								
UMB0032A									
<i>GARDNERELLA</i>	Propioncin_	-	-	-	-	-	-	-	T3PKS
<i>VAGINALIS</i> STR.	SM1								
UMB0386									
<i>GARDNERELLA</i>	Propioncin_	-	-	-	-	-	-	-	T3PKS
<i>VAGINALIS</i> STR.	SM1								
UMB0032B									
<i>GARDNERELLA</i>	Propioncin_	-	-	-	-	-	-	-	T3PKS

[illegible]



<i>KLEBSIELLA PNEUMONIAE</i> STR. UMB0140	Bottromycin	-	-	-	-	Thiopeptide	NRP-metallophore, NRPS, RiPP-like	Redox-cofactor
<i>KOCURIA RHIZOPHILA</i> STR. UMB0131	-	-	-	-	-	-	-	Terpene, T3PKS, NI- siderophore, NAPAA, Betalactone
<i>KYTOCOCCUS SCHROETERI</i> STR. UMB1298	Propioncin_T1 (2)	-	-	-	-	-	RiPP-like	NAPAA, Terpene, NI- siderophore, Ectoine
<i>LACTOBACILLUS CRISPATUS</i> STR. UMB0803	Enterolysin_A	Bacteriocin_LS2chaina, ggmotif: ComC; bacteriocin_IIC	Bacteriocin_helveticin_J	Helevticin_J	Penocin_A (2)	-	RiPP-like (4)	-
<i>LACTOBACILLUS CRISPATUS</i> STR. UMB0044	Enterolysin_A	Bacteriocin_LS2chaina, ggmotif: ComC; bacteriocin_IIC	Bacteriocin_helveticin_J	Helevticin_J	Penocin_A (2)	-	RiPP-like (4)	-
<i>LACTOBACILLUS CRISPATUS</i> STR. UMB0085	ComC; L_biotic_typeA_bacteriocin IIC, ggmotif: ComC; bacteriocin	Bacteriocin_LS2chaina	Bovicin_225_peptide	Enterolysin_A	Bacteriocin_helveticin_J	-	RiPP-like (3)	-
<i>LACTOBACILLUS CRISPATUS</i> STR.	Bacteriocin_helveticin_J	Helevticin_J	Helevticin_J	Bovicin_225_peptide	Enterolysin_A	-	LAP, RiPP-like	Furan

UMB0824									
<i>LACTOBACILLUS CRISPATUS</i> STR. UMB0040	Bacteriocin helveticn_J	Helevticin_J	Bovicin_225_peptide	ComC; L_biotic_typeA_bacteriocin Ilc, ggmotif: ComC; bacteriocin_Ilc	Bacteriocin_LS2_chainA	-	RiPP-like (2)	-	
<i>LACTOBACILLUS CRISPATUS</i> STR. UMB0040	Bacteriocin helveticn_J	Helevticin_J	Bovicin_225_peptide	ComC; L_biotic_typeA_bacteriocin Ilc, ggmotif: ComC; bacteriocin_Ilc	Bacteriocin_LS2_chainA	-	RiPP-like (2)	-	
<i>LACTOBACILLUS CRISPATUS</i> STR. UMB1398	Bacteriocin helveticn_J	Helevticin_J	ComC; L_biotic_typeA_bacteriocin Ilc, ggmotif: ComC; bacteriocin_Ilc	Bacteriocin_LS2_chainA	Enterolysin_A	-	RiPP-like (2)	-	
<i>LACTOBACILLUS CRISPATUS</i> STR.	Bacteriocin_LS2_chainA	Enterolysin_A	Enterolysin_A	Helevticin_J	-	-	RiPP-like (3)	-	

UMB0054									
<i>LACTOBACILLUS DELBRUECKII</i> STR.	Helevticin_J	Helevticin_J	Enterolysin_A	-	-	-	-	-	-
UMB0003									
<i>LACTOBACILLUS FERMENTUM</i> STR.	Enterolysin_A	-	-	-	-	-	-	-	Terpene
UMB0187									
<i>LACTOBACILLUS GASSERI</i> STR. UMB0099	Acidiocin_L F221B (GassericinK 7B), Gassericin_T	Bacteriocin_LS2chainb, Unidentified Bacteriocin	L_biotic_typeA: bacteriocin_IIC, ggmotif; Bacteriocin_IIC	Bacteriocin_helvetici_J	Microcin_M	-	Gassericin_T, Gassericin-S	-	
<i>LACTOBACILLUS GASSERI</i> STR. UMB0045	AcdB_acidocin_B	Bacteriocin_helvetici_J	-	-	-	-	-	-	-
<i>LACTOBACILLUS GASSERI</i> STR. UMB0670	AcdB_acidocin_B	L_biotic_typeA; bacteriocin_IIC	Pedicion	Bacteriocin_helvetici_J	-	-	-	-	-
<i>LACTOBACILLUS GASSERI</i> STR. UMB0045	AcdB_acidocin_B	Bacteriocin_helvetici_J	-	-	-	-	-	-	-
<i>LACTOBACILLUS GASSERI</i> STR. UMB0056	Bacteriocin_LS2_chainb, Bacteriocin	Bacteriocin_helvetici_J	-	-	-	-	Gassericin T, Gassericin-S	-	
<i>LACTOBACILLUS INERS</i> STR. UMB0030	Mutacin_11 (MutacinH-29B)	Lanthipeptide-Class-II	-	-	-	-	RiPP-like, Lanthipeptide_Class-II	-	
<i>LACTOBACILLUS INERS</i>	Mutacin_11	Lanthipeptide- Class-II	-	-	-	-	Lanthipeptide	-	

STR. UMB0033	(MutacinH-29B)							- Class-II	
<i>LACTOBACILLUS INERS</i> STR. UMB1051	Mutacin_11 (MutacinH-29B)	Lanthipeptide-Class-IV	-	-	-	-	Mutacin II, Lanthipeptide- Class_V, Lanthipeptide_ Class_III	-	
<i>LACTOBACILLUS JENSENII</i> STR. UMB0007	-	-	-	-	-	-	NRPS	-	
<i>LACTOBACILLUS JENSENII</i> STR. UMB0077	Enterolysin_ A	-	-	-	-	-	NRPS	-	
<i>LACTOBACILLUS PONTIS</i> STR. UMB0683	-	-	-	-	-	-	-	T3PKS, Furan	
<i>LACTOBACILLUS RHAMNOSUS</i> STR. UMB0004	Carnocin_C P52	Enterocin_X_chain_beta	ggmotif; Bacteriocin_ IIC	-	-	-	RiPP-like	T3PKS	
<i>LACTOBACILLUS VAGINALIS</i> STR. UMB0388	Enterolysin_ A	-	-	-	-	-	-	T3PKS	
<i>LECLERCIA ADECARBOXYLATA</i> STR. UMB0660	Bottromycin	-	-	-	-	Thiopepti de	NRP- metallophore, NRPS	NI- siderophore, Butyrolactone, arylpolylene	
<i>MICROBACTERIUM SP.</i> STR. UMB0228	-	-	-	-	-	-	LAP	Terpene, Betalactone, TPKS	
<i>MICROCOCOCCUS LUTEUS</i> STR. UMB0189	-	-	-	-	-	-	-	NI-siderophore, NAPAA,	

									Betalactone, Terpene, Ectoine, RRE-containing
<i>MICROCOCCUS SP.</i> STR. UMB0867	-	-	-	-	-	-	-	-	NI- siderophore, NAPAA, Betalactone, Terpene, Ectoine, RRE- containing
<i>MICROCOCCUS SP.</i> STR. UMB0031	-	-	-	-	-	-	-	-	NI-siderophore, NAPAA, Betalactone, Terpene, Ectoine, RRE- containing
<i>MICROCOCCUS LUTEUS</i> STR. UMB0189	-	-	-	-	-	-	-	-	NI-siderophore, NAPAA, Betalactone, Terpene, Ectoine, RRE- containing
<i>MICROCOCCUS SP.</i> STR. UMB0038	-	-	-	-	-	-	-	-	NI- siderophore, NAPAA, Betalactone, Terpene, Ectoine, RRE-

									containing
<i>MICROCOCCUS LYLAE</i> STR. UMB0955	Lanthipeptid e-Class-IV	-	-	-	-	-	Lanthipeptide- Class-III	Ectoine, Betalactone, NAPAA	
MORAXELLA OSLOENSIS STR. UMB0416	-	-	-	-	-	-	-	Betalactone, NI- siderophore	
<i>MORGANELLA</i> <i>MORGANII</i> STR. UMB1297	Bottromycin	Colicin_E6	Microcin	-	-	Thiopepti de	RiPP-like, NRPS	Betalactone, T1PKS	
<i>NEISSERIA PERFLAVA</i> STR. UMB0023	-	-	-	-	-	-	-	Terpene, Arylpolyene (2), hserlactone, Resorcinol	
<i>NEISSERIA PERFLAVA</i> STR. UMB0210	-	-	-	-	-	-	-	Terpene, Arylpolyene (2), hserlactone, Resorcinol	
<i>NEISSERIA SICCA</i> STR. UMB0321	-	-	-	-	-	-	-	Terpene, hserlactone	
<i>NOSOCOMIICOCCUS</i> <i>MASSILIENSIS</i> STR. UMB0959	Lanthipeptid e-Class-I	-	-	-	-	-	Lanthipeptide- Class-I	-	
<i>NOSOCOMIICOCCUS</i> <i>MASSILIENSIS</i> STR. UMB0959	Lanthipeptid e-Class-I	-	-	-	-	-	Lanthipeptide- Class-I	-	

<i>OLIGELLA URETHRALIS</i> STR. UMB0345	-	-	-	-	-	-	-	Betalactone, Terpene, NI_siderophore RRE-containing
<i>PREVOTELLA BUCCALIS</i> STR. UMB0536	-	-	-	-	-	-	-	RRE-containing
<i>PREVOTELLA</i> <i>TIMONENSIS</i> STR. UMB0818	LAPs	Sactipeptide	-	-	-	-	LAP	RRE-containing
<i>PROPIONIBACTERIUM</i> <i>ACNES</i> STR. UMB0211	TP-1161	TP-1161	-	-	-	Thiopeptide, Cutimycin	RiPP-like, NRPS (2)	-
<i>PROTEUS MIRABILIS</i> STR. UMB0315	Bottromycin	Colicin	-	-	-	Thiopeptide	RiPP-like, NRPS	Betalactone, NI- siderophore, T1PKS, Ladderane
<i>PSEUDOMONAS</i> <i>AERUGINOSA</i> STR. UMB0740	Bottromycin	Colicin-10	Pyocin_AP4 1_subunit	Pyocin_S1	-	Thiopeptide	Pyocyanine (2), NRPS-like (2), NRPS (7)	Redox-cofactor, hserlactone, Betalactone, NAGGN, opine- like- metallophore, pyochelin
<i>ROTHIA DENTOCARIOSA</i> STR. UMB0083	LAPs	Lichenicidin VK21A1	ggmotif; LE-DUF; LE- LAC481;	MA-2PEPA	L_biotic_t ypeA	-	LAP, Lanthipeptide- Class_II	Enterobactin, RRE-containing, Butyrolactone

			LE-MER+2PEP ; L_biotic_typeA;					
<i>ROTHIA MUCILAGINOSA</i> STR. UMB0024	Geobacillin	Sactipeptide	-	-	-	-	-	Enterobactin
<i>STAPHYLOCOCCUS AUREUS</i> STR. UMB0910	Putative bacteriocin	Sactipeptide	Auto-inducing-peptide- III	Delta-lysin	-	-	RiPP-like, NRPS	Staphyloferrin A, Staphyloferrin B, Staphylopine cyclic-lactone-autoinducer, Terpene, T3PKS
<i>STAPHYLOCOCCUS HOMINIS</i> STR. UMB0272	Auto_inducing_peptide_I I	Sactipeptide	Amylocyclin	-	-	-	RiPP-like (2)	Cyclic-lactone-autoinducer, NI-siderophore, T3PKS
<i>STAPHYLOCOCCUS SP.</i> STR. UMB0328	Auto_inducing_peptide_I I	Delta-lysinI (2)	Lanthipeptide- Class-II	Sactipeptide	Warnericin _RC	-	Lanthipeptide-Class-II	Staphylopine, Staphyloferrin A, T3PKs, Terpene, cyclic lactone autoinducer
<i>STAPHYLOCOCCUS PETTENKOFERI</i> STR. UMB0834	Auto_inducing_peptide_I I	Sactipeptide	Zoocin_A	-	-	-	Epeptide	Terpene, NI_siderophore (2), T3PKS,

[illegible]

<i>STREPTOCOCCUS ANGINOSUS</i> STR. UMB0434	-	-	-	-	-	-	-	RiPP-like	T3PKS
<i>STREPTOCOCCUS ANGINOSUS</i> STR. UMB0050	-	-	-	-	-	-	-	RiPP-like	T3PKS
<i>STREPTOCOCCUS ANGINOSUS</i> STR. UMB0142	-	-	-	-	-	-	-	RiPP-like	T3PKS
<i>STREPTOCOCCUS DENTISANI</i> STR. UMB0832	Sactipeptide	-	-	-	-	-	-	RiPP-like, NRPS	T3PKS
<i>STREPTOCOCCUS DENTISANI</i> STR. UMB0008	Acidiocin_L F221B (GassericinK 7B), Gassericin_T	-	-	-	-	-	-	RiPP-like (2)	T3PKS
<i>STREPTOCOCCUS DENTISANI</i> STR. UMB0029	LAPs	Lichenicidin VK21A2_ (Lichenicidin_A2)	Pneumolancidin (2)	Sactipeptide (2)	Thusin_alpha	Thiopeptide	Lanthipeptide-Class-II, RiPP-like (2), RaS-RiPP	Furan	
<i>STREPTOCOCCUS DENTISANI</i> STR. UMB0079	Pneumolancidin (3)	-	-	-	-	-	RiPP-like (2)	T3PKS	
<i>STREPTOCOCCUS MITIS</i> STR. UMB1341	-	-	-	-	-	-	RiPP-like	T3PKS	
<i>STREPTOCOCCUS</i>	Pneumolancidin	-	-	-	-	-	RiPP-like (2)	T3PKS	

<i>DENTISANI</i> STR. UMB0079	din (3)								
<i>STREPTOCOCCUS PARASANGUINI</i> STR. UMB0216	Sactipeptide	-	-	-	-	-	-	-	-
<i>STREPTOCOCCUS MACEDONICUS</i> STR. UMB0733	Ubericin_A	Bovicin_225_peptide (4)	Nisin_U	-	-	-	Lanthipeptide-Class-I, RiPP-like	T3PKS	
<i>STREPTOCOCCUS SALIVARIUS</i> STR. UMB0051	Salvaricin_A 5	Thermophilin_A	Bacteriocin_J46 (2), McdA1	BlpI	-	-	Salvaricin A, Suicin 65, RiPP-like (2)	T3PKS	
<i>STREPTOCOCCUS SALIVARIUS</i> STR. UMB0028	Streptin	-	-	-	-	-	Streptin	T3Pks	
<i>TRUEPERELLA BERNARDIAE</i> STR. UMB0116	Sactipeptide	-	-	-	-	-	-	-	-
<i>VARIBACULUM CAMBRIENSE</i> STR. UMB0744	Sactipeptide	-	-	-	-	-	RiPP-like	-	
<i>VARIBACULUM CAMBRIENSE</i> STR. UMB0796	Sactipeptide	-	-	-	-	-	RiPP-like	-	
<i>VEILLONELLA PARVULA</i> STR. UMB0371	-	-	-	-	-	-	Ranthipeptide	-	
<i>YOKENELLA REGENSBURGEI</i> STR.	Bottromycin	-	-	-	-	Thiopeptide	Enterobactin, NRP-	Butyrolactone, Arylpolyene, NI-	

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UMB0819

metallophore

siderophore

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**Supplementary Table 2. Urobiome strains which encode putative bacteriocin gene cluster(s) with surrounding accessory genes present**

BAGEL4 AOIs	Genome name	BLASTP result	Query cover	% identity	Alignment EMBOSS	Accession number
ACIDIOICIN_LF221B(GASSERICINK7B)	<i>Streptococcus dentisani</i> str. UMB0008	Blp family class II bacteriocin [ <i>Streptococcus oralis</i> ]	100%	100%	100%	WP_049537864.1
ACIDOCIN_LF22IB(GASSERICINK7B)	<i>Lactobacillus gasseri</i> str. UMB0099	Blp family class II bacteriocin [ <i>Lactobacillus</i> ]	100%	100%	100%	WP_003649213.1
AMYLOCYCLIN*	<i>Staphylococcus hominis</i> str. UMB0272	Uberolysin/carnocyclin family circular bacteriocin [ <i>Staphylococcus hominis</i> ]	100%	100%	89%	WP_101804450.1
BACTERIOICIN*	<i>Lactobacillus gasseri</i> str. UMB0056	Bacteriocin [ <i>Lactobacillus</i> ]	100%	100%	100%	WP_049160225.1
BACTERIOICIN_LS2CHAINA*	<i>Lactobacillus crispatus</i> str. UMB0040	Blp family class II bacteriocin [ <i>Lactobacillus amylovorus</i> ]	100%	99%	99%	WP_013642488.1
BACTERIOICIN_LS2CHAINA*	<i>Lactobacillus crispatus</i> str. UMB0803	Blp family class II bacteriocin [ <i>Lactobacillus amylovorus</i> ]	100%	99%	99%	WP_013642488.1
BACTERIOICIN_LS2CHAINA*	<i>Lactobacillus crispatus</i> str. UMB0085	Blp family class II bacteriocin [ <i>Lactobacillus crispatus</i> ]	100%	99%	99%	WP_013642488.1
BACTERIOICIN_LS2CHAINA*	<i>Lactobacillus crispatus</i> str.	Blp family class II bacteriocin [ <i>Lactobacillus crispatus</i> ]	100%	99%	99%	WP_013642488.1

	UMB0044					
BACTERIOCIN_LS2CHA INA*	<i>Lactobacillus</i> <i>crispatus</i> str.	Blp family class II bacteriocin [ <i>Lactobacillus</i> <i>crispatus</i> ]	100%	99%	99%	WP_0136 42488.1
	UMB1398					
BACTERIOCIN_LS2CHA INA	<i>Lactobacillus</i> <i>crispatus</i> str.	Blp family class II bacteriocin [ <i>Lactobacillus</i> <i>crispatus</i> ]	100%	100%	100%	WP_0057 26423.1
	UMB0054					
BACTERIOCIN_LS2CHA INB*	<i>Lactobacillus gasseri</i> str. UMB0056	Blp family class II bacteriocin [ <i>Ligilactobacillus</i> <i>salivarius</i> ]	97%	47.76 %	43.8%	WP_0324 95430.1
BACTERIOCIN_LS2CHA INB*	<i>Lactobacillus gasseri</i> str. UMB0099	Blp family class II bacteriocin [ <i>Ligilactobacillus</i> <i>salivarius</i> ]	97%	47.76 %	43.8%	WP_0324 95430.1
BIPI*	<i>Streptococcus</i> <i>salivarius</i> str.	Class IIb bacteriocin, lactobin A/cerein 7B family [ <i>Streptococcus</i> ]	87%	100%	87.1%	WP_2257 91565.1
	UMB0051					
BIPM	<i>Streptococcus</i> <i>dentisani</i> str.	Two-peptide bacteriocin subunit BlpM [ <i>Streptococcus</i> ]	100%	100%	100%	WP_0003 79951.1
	UMB0008					
BIPM	<i>Streptococcus</i> <i>dentisani</i> str.	Blp family class II bacteriocin [ <i>Streptococcus</i> <i>oralis</i> ]	100%	100%	100%	WP_1018 00376.1
	UMB0008					
BIPN	<i>Streptococcus</i> <i>dentisani</i> str.	Blp family class II bacteriocin [Bacteria]	100%	100%	100%	WP_0010 99737.1
	UMB0008					
BIPU*	<i>Streptococcus</i> <i>dentisani</i> str.	MULTISPECIES: bacteriocin class II family protein [Bacteria]	100%	100%	100%	WP_0708 00393.1

BLPC*	UMB0008 <i>Streptococcus dentisani</i> str.	Quorum-sensing system pheromone BlpC [ <i>Streptococcus oralis</i> ]	100%	100%	100%	WP_101800373.1
BOVICIN_225_PEPTIDE*	UMB0008 <i>Streptococcus macedonicus</i> str.	Bacteriocin [ <i>Streptococcus</i> ]	74%	66.27%	49.1%	WP_039694458.1
BOVICIN_225_PEPTIDE*	UMB0733 <i>Streptococcus macedonicus</i> str.	Garvicin Q family class II bacteriocin [ <i>Streptococcus gallolyticus</i> ]	100%	80%	43.9%	WP_039694458.1
BOVICIN_225_PEPTIDE*	UMB0733 <i>Streptococcus macedonicus</i> str.	Garvicin Q family class II bacteriocin [ <i>Streptococcus gallolyticus</i> ]	60%	80%	32.4%	WP_039694458.1
BOVICIN_225_PEPTIDE*	UMB0733 <i>Streptococcus macedonicus</i> str.	Bacteriocin class II with double glycine leader peptide [ <i>Streptococcus infantarius subsp. Infantarius</i> ]	100%	95.9%	95.9%	MCO4620482.1
CARNOCIN_CP52*	UMB0733 <i>Lactobacillus rhamnosus</i> str.	Bacteriocin immunity protein [ <i>Lacticaseibacillus rhamnosus</i> ]	100%	100%	100%	WP_047678371.1
COLICIN	UMB0004 <i>Citrobacter murlinae</i> str. UMB1094	Type VI secretion system tube protein TssD [ <i>Citrobacter freundii</i> ]	100%	100%	100%	WP_102190731.1
COLICIN*	UMB0901 <i>Escherichia coli</i> str.	Pyocin-S2 [ <i>Escherichia coli</i> ]	100%	100%	100%	CAF4718426.1
COLICIN*	UMB0727 <i>Escherichia coli</i> str.	Pyocin-S2 [ <i>Escherichia coli</i> ]	100%	100%	100%	CAF4718426.1

COLICIN*	<i>Proteus mirabilis</i> str. UMB0315	Colicin-E2 [ <i>Proteus mirabilis</i> ]	99%	99%	99.1%	AWF41001.1
COLICIN-10	<i>Escherichia coli</i> str. UMB0727	Colicin-like pore-forming protein [ <i>Escherichia coli</i> ]	100%	100%	100%	WP_016232721.1
COLICIN_E7	<i>Escherichia coli</i> str. UMB0727	Colicin-like bacteriocin tRNase domain-containing protein [ <i>Escherichia coli</i> ]	100%	100%	100%	WP_042021075.1
COLICIN_E9*	<i>Escherichia coli</i> str. UMB0789	Type VI secretion system tube protein TssD [ <i>Escherichia coli</i> ]	100%	100%	99.8%	WP_000502506.1
COLICIN_E9*	<i>Escherichia coli</i> str. UMB0900	Colicin [ <i>Escherichia coli</i> ]	100%	100%	99.7%	STP22082.1
COLICIN_E6	<i>Morganella morganii</i> str. UMB1297	Colicin E3/pyocin S6 family cytotoxin [ <i>Morganella morganii</i> ]	100%	100%	100%	WP_180801870.1
COMC; L_BIOTIC_TYPEA; BACTERIOCIN_IIC*	<i>Lactobacillus crispatus</i> str. UMB0040	Hypothetical protein [ <i>Lactobacillus</i> ]	100%	100%	100%	WP_005720990.1
COMC; L_BIOTIC_TYPEA; BACTERIOCIN_IIC*	<i>Lactobacillus crispatus</i> str. UMB0085	Bacteriocin [ <i>Lactobacillus crispatus</i> ]	100%	100%	100%	WP_005720990.1
COMC; L_BIOTIC_TYPEA; BACTERIOCIN_IIC*	<i>Lactobacillus crispatus</i> str. UMB1398	Hypothetical protein [ <i>Lactobacillus</i> ]	100%	100%	100%	WP_005720990.1
COMC; L_BIOTIC_TYPEA; BACTERIOCIN_IIC*	<i>Streptococcus macedonicus</i> str. UMB0733	Bacteriocin [ <i>Streptococcus gallolyticus</i> ]	100%	78%	78%	WP_114317773.1
ENTEROCIN_X_CHAIN_	<i>Lactobacillus</i>	Class IIb bacteriocin, lactobin A/cerein 7B family	100%	100%	100%	WP_0476

BETA*	<i>rhamnosus</i> str. UMB0004	[ <i>Lacticaseibacillus rhamnosus</i> ]				78355.1
GASSERICIN_T	<i>Lactobacillus gasseri</i> str. UMB0099	Blp family class II bacteriocin [ <i>Lactobacillus paragasseri</i> ]	100%	100%	100%	WP_049159833.1
GGMOTIF; BACTERIOCIN_IIC; GGMOTIF; BACTERIOCIN_IIC*	<i>Lactobacillus gasseri</i> str. UMB0099	Blp family class II bacteriocin [ <i>Lactobacillus</i> ]	100%	100%	100%	WP_101890487.1
	<i>Lactobacillus rhamnosus</i> str. UMB0004	Bacteriocin [ <i>Lacticaseibacillus rhamnosus</i> ]	100%	100%	100%	WP_049171132.1
GGMOTIF; COMC; BACTERIOCIN_IIC*	<i>Lactobacillus crispatus</i> str. UMB0803	Bacteriocin [ <i>Lactobacillus crispatus</i> ]	100%	98%	98%	MCT7887040.1
GGMOTIF; COMC; BACTERIOCIN_IIC*	<i>Lactobacillus crispatus</i> str. UMB0040	Bacteriocin [ <i>Lactobacillus crispatus</i> ]	100%	98%	98%	MCT7887040.1
GGMOTIF; COMC; BACTERIOCIN_IIC*	<i>Lactobacillus crispatus</i> str. UMB0085	Bacteriocin [ <i>Lactobacillus crispatus</i> ]	100%	98%	98%	MCT7887040.1
GGMOTIF; COMC; BACTERIOCIN_IIC*	<i>Lactobacillus crispatus</i> str. UMB0044	Bacteriocin [ <i>Lactobacillus crispatus</i> ]	100%	98%	98%	MCT7887040.1
GGMOTIF; COMC; BACTERIOCIN_IIC*	<i>Lactobacillus crispatus</i> str. UMB1398	Bacteriocin [ <i>Lactobacillus crispatus</i> ]	100%	98%	98%	MCT7887040.1
L_BIOTIC_TYPEA:	<i>Lactobacillus gasseri</i>	Lactacin F inducer peptide precursor [ <i>Lactobacillus</i> ]	100%	84%	92%	WP_2603

BACTERIOCIN_IIC*	str. UMB0099	<i>johnsonii</i> ]				07981.1
L_BIOTIC_TYPEA; BACTERIOCIN_IIC*	<i>Lactobacillus gasseri</i> str. UMB0670	Lactacin F inducer peptide precursor [ <i>Lactobacillus gasseri</i> ]	98%	100%	98%	WP_2257 92992.1
LAPS (SONORENSIN)*	<i>Bacillus cibi</i> str. UMB0893	Heterocycloanthracin/sonorensin family bacteriocin [ <i>Bacillus</i> sp. UMB0893]	73%	100%	73.3%	PLR6611 9.1
LICHENICIDINVK21A1*	<i>Aerococcus sanguinicola</i> str. UMB0139	Plantaricin C family lantibiotic [ <i>Aerococcus sanguinicola</i> ]	100%	100%	100%	WP_1016 03837.1
LICHENICIDINVK21A2_ (LICHENICIDIN_A2)*	<i>Streptococcus dentisani</i> str. UMB0029	Class II lanthipeptide, LchA2/BrTA2 family [ <i>Streptococcus</i> sp. UMB0029]	100%	100%	87.5%	WP_1022 10124.1
MCDA1	<i>Streptococcus salivarius</i> str. UMB0051	Lactacin 481 family lantibiotic [ <i>Streptococcus</i> ]	100%	100%	100%	WP_0807 02563.1
MICROCIN_H47_(MCCH 47)	<i>Escherichia coli</i> str. UMB0789	MchB protein [ <i>Escherichia coli</i> CFT073]	100%	100%	100%	WP_0807 02563.1
MICROCIN_M	<i>Escherichia coli</i> str. UMB0789	Microcin McmA [ <i>Escherichia</i> ]	100%	100%	100%	WP_0013 18125.1
MICROCIN_M*	<i>Lactobacillus gasseri</i> str. UMB0099	Bacteriocin [ <i>Lactobacillus</i> ]	100%	100%	100%	WP_1018 90486.1
MUTACIN_11(MUTACI NH-29B)	<i>Lactobacillus gasseri</i> str. UMB1051	Lactacin 481 family lantibiotic [ <i>Lactobacillus iners</i> ]	100%	100%	100%	WP_2765 08305.1
MUTACIN_11(MUTACI NH-29B)	<i>Gardnerella vaginalis</i> str. UMB0033	Type A2 lanthipeptide [ <i>Lactobacillus iners</i> ]	100%	100%	100%	WP_2403 98376.1
MUTACIN_11(MUTACI	<i>Lactobacillus iners</i>	Type A2 lanthipeptide [ <i>Lactobacillus iners</i> ]	100%	100%	63.1%	WP_2403

NH-29B)*	str. UMB0030					98376.1
NISIN_U*	<i>Streptococcus macedonicus</i> str. UMB0733	Gallidermin/nisin family lantibiotic [ <i>Streptococcus suis</i> ]	100%	100%	75%	WP_228478826.1
PEDIOGIN*	<i>Lactobacillus gasseri</i> str. UMB0099	Bacteriocin immunity protein [ <i>Lactobacillus</i> ]	100%	100%	100%	WP_101890489.1
PEDIOGIN*	<i>Lactobacillus gasseri</i> str. UMB0670	Pediocin immunity protein PedB [ <i>Lactobacillus gasseri</i> ATCC 33323 = JCM 1131]	100%	100%	89%	ABJ59938.1
PENOCIN_A*	<i>Lactobacillus crispatus</i> str. UMB0044	TIGR04139 family peptide modification target [ <i>Lactobacillus crispatus</i> ]	100%	100%	96%	AZR16416.1
PENOCIN_A*	<i>Lactobacillus crispatus</i> str. UMB0803	Hypothetical protein [ <i>Lactobacillus crispatus</i> ]	98%	40.62%	34.7%	WP_154626382.1
PLANTARICIN C FAMILY LANTIBIOTIC*	<i>Staphylococcus</i> sp. str. UMB0328	Plantaricin C family lantibiotic [ <i>Staphylococcus</i> ]	100%	100%	100%	WP_104681709.1
PNEUMOLANCIDIN	<i>Finegoldia magna</i> str. UMB0115	Salivaricin M family lantibiotic [ <i>Finegoldia magna</i> ]	100%	100%	100%	WP_094206507.1
PUTATIVE BACTERIOGIN*	<i>Streptococcus dentisani</i> str. UMB0008	ComC/BlpC family leader-containing pheromone/bacteriocin [ <i>Streptococcus</i> ]	100%	100%	100%	WP_070800397.1
PUTATIVE BACTERIOGIN*	<i>Lactobacillus crispatus</i> str. UMB0085	Lactococcin 972 family bacteriocin [ <i>Lactobacillus</i> ]	100%	100%	100%	WP_061205069.1
PUTATIVE	<i>Finegoldia magna</i> str.	Lactococcin 972 family bacteriocin [ <i>Finegoldia</i> ]	100%	100%	95.5%	WP_0028

BACTERIOCIN*	UMB0115					40185.1
PYOCIN_AP41_SUBUNIT	<i>Pseudomonas aeruginosa</i> str. UMB0740	Pyocin_S1 [ <i>Pseudomonas</i> ]	100%	100%	100%	WP_003145451.1
PYOCIN_S1	<i>Pseudomonas aeruginosa</i> str. UMB0740	S-type pyocin domain-containing protein [ <i>Pseudomonas aeruginosa</i> ]	100%	100%	100%	WP_023088120.1
SALVARICIN_A5	<i>Streptococcus salivarius</i> str. UMB0051	Type A2 lanthipeptide [ <i>Streptococcus salivarius</i> ]	100%	100%	100%	WP_101799750.1
STREPTIN	<i>Streptococcus salivarius</i> str. UMB0028	Lantibiotic streptin [ <i>Streptococcus sanguinis</i> ]	100%	100%	100%	WP_002917611.1
SUBTILIN*	<i>Rothia mucilaginosa</i> str. UMB0024	Gallidermin/nisin family lantibiotic [ <i>Actinomyces sp.</i> ICM58]	100%	83.54%	83.5%	WP_081495980.1
THERMOPHILLIN_A	<i>Streptococcus salivarius</i> str. UMB0051	Blp family class II bacteriocin [ <i>Streptococcus</i> ]	100%	100%	100%	WP_048674859.1
THUSIN_ALPHA	<i>Streptococcus dentisani</i> str. UMB0029	Lichenicidin alpha family lanthipeptide [ <i>Streptococcus sp.</i> UMB0029]	100%	100%	100%	WP_102210125.1
UBERICIN_A*	<i>Streptococcus macedonicus</i> str. UMB0733	Blp family class II bacteriocin [ <i>Streptococcus</i> ]	93%	100%	93.5%	WP_003066580.1
UNIDENTIFIED	<i>Lactobacillus gasseri</i>	Bacteriocin [ <i>Lactobacillus</i> ]	100%	100%	100%	WP_0491

BACTERIOCIN*	str. UMB0099					60225.1
VARIACIN (17.2 BACTERIOCIN_J46)	<i>Gardnerella vaginalis</i> str. UMB1642	Lacticin 481 family lantibiotic [ <i>Gardnerella</i> ]	100%	100%	100%	WP_0041 11352.1
VARIACIN (17.2 BACTERIOCIN_J46)	<i>Gardnerella vaginalis</i> str. UMB0170	Lacticin 481 family lantibiotic [ <i>Gardnerella</i> ]	100%	100%	100%	WP_0041 11352.2
VARIACIN (17.2 BACTERIOCIN_J46)	<i>Streptococcus</i> <i>salivarius</i> str. UMB0051	Lacticin 481 family lantibiotic [ <i>Streptococcus</i> ]	100%	100%	100%	WP_0376 01371.1
VARIACIN (17.2 BACTERIOCIN_J46)*	<i>Streptococcus</i> <i>salivarius</i> str. UMB0051	Lacticin 481 family lantibiotic [ <i>Streptococcus</i> <i>salivarius</i> ]	100%	100%	98%	WP_0376 01366.1

Putative bacteriocin hits are presented with their closest homologues as identified through BLASTP analysis and alignment using EBI EMBOSS needle, with an \* representing the bacteriocins that are potentially novel by either differing by two or more amino acids or matching to a reported but previously uncharacterised bacteriocin.